

MANAGEMENT OF GASTROINTESTINAL DISORDERS IN CENTRAL AND EASTERN EUROPE: SELF-REPORTED PRACTICE OF PRIMARY CARE PHYSICIANS

ZDRAVLJENJE BOLEZNI PREBAVIL V SREDNJI IN VZHODNI EVROPI: PODATKI, KI JIH ZDRAVNIKI V PRIMARNI ZDRAVSTVENI OSKRBI SAMI SPOROČAJO

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ABSTRACT

Keywords:

General practice;
gastrointestinal diseases;
gastroesophageal reflux;
colorectal neoplasms;
irritable bowel syndrome

Background. Gastrointestinal disorders account for 7-10% of all consultations in primary care. General practitioners' management of digestive disorders in Central and Eastern European countries is largely unknown.

Aims. To identify and compare variations in the self-perceived responsibilities of general practitioners in the management of digestive disorders in Central and Eastern Europe.

Methods. A cross-sectional survey of a randomized sample of primary care physicians from 9 countries was conducted. An anonymous questionnaire was sent via post to primary care doctors.

Results. We received 867 responses; the response rate was 28.9%. Over 70% of respondents reported familiarity with available guidelines for gastrointestinal diseases. For uninvestigated dyspepsia in patients under 45 years, the "test and treat" strategy was twice as popular as "test and scope". The majority (59.8%) of family physicians would refer patients with rectal bleeding without alarm symptoms to a specialist (from 7.6% of doctors in Slovenia to 85.1% of doctors in Bulgaria; $p < 0.001$). 93.4% of respondents declared their involvement in colorectal cancer screening. In the majority of countries, responding doctors most often reported that they order fecal occult blood tests. The exceptions were Estonia and Hungary, where the majority of family physicians referred patients to a specialist ($p < 0.001$).

Conclusions. Physicians from Central and Eastern European countries understood the need for the use of guidelines for the care of patients with gastrointestinal problems, but there is broad variation between countries in their management. Numerous efforts should be undertaken to establish and implement international standards for digestive disorders' management in general practice.

IZVLEČEK

Ključne besede:

Splošna medicina, bolezni prebavil, gastroezofagealni refluks, novotvorbe debelega črevesa in danke, sindrom razdražljivega črevesja

Uvod. 7-10 % vseh posvetov v primarni zdravstveni oskrbi se nanaša na bolezni prebavil. O zdravljenju bolezni prebavil s strani splošnih zdravnikov v Srednji in Vzhodni Evropi ni na razpolago veliko podatkov.

Cilji. Ugotoviti in primerjati razlike v samoznani odgovornosti splošnih zdravnikov pri zdravljenju bolezni prebavil v Srednji in Vzhodni Evropi.

Metode. Naredili smo presečne ankete na randomiziranem vzorcu splošnih zdravnikov v primarni zdravstveni oskrbi iz devetih držav. Po pošti smo zdravnikom v primarni zdravstveni oskrbi poslali anonimni vprašalnik.

Rezultati. Prejeli smo 867 odgovorov, stopnja odzivnosti je bila 28,9 %. Več kot 70 % anketirancev je v odgovorih navedlo, da so seznanjeni z razpoložljivimi smernicami za bolezni prebavil. Za neraziskano dispepsijo pri bolnikih, mlajših od 45 let, je bila dvakrat bolj priljubljena strategija »testiranja in zdravljenja« kot pa strategija »testiranja in gastroskopije«. Večina (59,8 %) zdravnikov v primarni zdravstveni oskrbi bi bolnike z rektalnimi krvavitvami brez znakov alarma napotila k specialistu (od 7,6 % zdravnikov v Sloveniji do 85,1 % zdravnikov v Bolgariji; $p < 0.001$). 93,4 % anketirancev je potrdilo svojo udeležbo pri presejalnih pregledih za odkrivanje raka debelega črevesa in danke. V večini držav so zdravniki najpogosteje poročali, da naročajo testiranje za odkrivanje prikritih krvavitev v blatu. Izjema pri tem sta bili Estonija in Madžarska, kjer večina zdravnikov v primarni zdravstveni oskrbi napoti paciente k specialistu ($p < 0.001$).

Zaključki. Zdravniki iz Srednje in Zahodne Evrope razumejo potrebo po uporabi smernic za nego bolnikov z boleznimi prebavil, vendar pa je pri obravnavi veliko razlik med posameznimi državami. Treba si je prizadevati in sprejeti ukrepe za vzpostavitev in izvajanje mednarodnih standardov za obravnavo bolezni prebavil v splošni praksi.

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1 INTRODUCTION

Gastrointestinal (GI) symptoms are highly prevalent in the community. Up to 60% of adult population could be classified as having symptoms of gastro-esophageal reflux (GORD), dyspepsia or irritable bowel syndrome (IBS), of which approximately 90% of the symptoms remained over a period of 1-6 months (1, 2). Gastrointestinal complaints are the cause for about 7-10% of all consultations in primary care, and the number of ambulatory visits due to digestive diseases is steadily rising (3). The costs of consultations in primary care for GI problems alone approach 7.8% of the total remuneration paid out to these physicians (4). GI disorders impair the quality of life and strongly affect health care services (5, 6). Colorectal cancer is a significant problem in the population with approximately 1.2 million newly diagnosed cases each year (7, 8).

Since the 1990s, Central and Eastern European (CEE) countries have gone through significant changes in the provision of health care, from a system that relied almost exclusively on centrally-administered specialist clinics to a new system modeled after western European systems (primarily from the United Kingdom and the Netherlands) (9-11). Under the newly implemented systems, family physicians/general practitioners (FPs/GPs) are the first contact health care professionals seen by individuals with GI symptoms. The FPs'/GPs' ability to manage the diversity of digestive disorders thus requires sound knowledge of guidelines and different approach strategies (12, 13).

The differences in the management of digestive disorders in primary care practices around Europe are still poorly known despite the recognized importance of such disorders' medical and economic implications (14, 15). While some pan-European and country-specific studies on the management of GI disorders in primary care exist, they refer mainly to health care in western, northern and southern Europe (16-18).

The aims of this study were:

1. to identify and compare variations in the self-perceived responsibilities of FPs/GPs in the management of digestive disorders in CEE countries,
2. to analyze associations between physicians' characteristics and the self-perceived care to patients with gastrointestinal diseases.

2 METHODS

We analyzed and compared data from a cross-sectional study of FPs/GPs in 9 CEE countries concerning their management of gastrointestinal diseases.

2.1 Survey

Based on the literature review and the expertise of the research team members, a draft version of the questionnaire was prepared. Content validity was verified by a coordination team consisting of at least one representative from each participating country. The face validity was

determined in a pilot study conducted among at least 10 FPs/GPs in each of the countries.

The English version of the questionnaire was translated into the 9 countries' national languages by professional translators and then reviewed, discussed and agreed upon by the respective members of the coordination team. The questionnaire consisted of three separate parts: 1) demographic data and professional characteristics of the study participants, 2) questions about declared management of patients with cardiovascular diseases and 3) a section aimed at evaluation of different aspects of care provided to patients with gastrointestinal disorders. The third part contained 10 questions, of which 5 had predefined answer options and 5 required the selection of one of four options on the Likert scale (never, sometimes, usually and always). The present paper deals only with the issues included in the GI part of the study, while the results related to cardiovascular problems have already been published elsewhere (19-21).

2.2 Subjects

The questionnaires were distributed to a total of 3000 primary care doctors in the 9 countries: Bulgaria (BG), Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV), Lithuania (LT), Poland (PL), Slovakia (SK) and Slovenia (SL). A random sample of GPs was drawn from national physicians' registers in each country. We aimed at a sample of at least 50 GPs in the smaller countries (Estonia, Latvia, Lithuania, Slovakia and Slovenia) and 100 in the larger ones (Bulgaria, Czech Republic, Hungary and Poland) to enable a reliable comparison between countries. The number of doctors approached in countries varied between 150 and 500 depending on the country's population and expected response rate.

2.3 Data collection and analysis

The chosen physicians received by regular mail (post) an anonymous questionnaire for self-completion, along with an instructional cover letter and a pre-paid return envelope. Reminders were mailed to non-responders at three weeks after the deadline and a phone call was made two weeks later. Data was compiled into a database for further analysis at a coordinating center in the Czech Republic.

Quantitative and qualitative analyses were performed. Frequency distribution for categorical variables and mean values for continuous variables were computed to describe the family physicians' samples. For questions with answers on the Likert scale, options were grouped as follows: "never" with "sometimes" and "usually" with "always". The Chi-squared test was used to compare differences between countries. The Chi-squared test was also used to investigate the relationship between the results and respondents' characteristics for qualitative variables. The Gamma correlation coefficient was calculated to measure correlations with quantitative variables. An alpha level of $p=0.05$ was considered statistically significant. A statistical analysis was performed by means of Statistica 10 software (StatSoft Inc.).

2.4 Ethics

Due to the nonexperimental design and lack of human or animal material involvement, ethical approval was not sought. The study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki.

3 RESULTS

3.1 Characteristics of participants

The desired number of collected questionnaires per country was attained in all countries with the exception of Lithuania. The sample included 867 family physicians. The average response rate for all participating countries was 28.9% and ranged from 20.7% in Lithuania to 85.6% in the Czech Republic. In all of the countries, about two-thirds of the respondents were women. The mean age of the respondents was 49.3 years (min. 44.1 in Bulgaria, max 53.5 in Hungary). The mean practice experience as a general practitioner ranged from 9.2 in Bulgaria to 22.6 years in Slovakia. Over three-quarters of doctors in all the countries had a specialization in family medicine/general practice. The majority of study participants practiced in urban areas. The detailed country-by-country characteristics of respondents are presented in Table 1.

Table 1. Number of respondents and characteristics of physicians in the study.

	Respondent (n)	Female (%)	Age in years (mean)	Years of experience in GP (mean)	Specialty in FM/GP (%)	Patients' population municipal/village/mixed (%)
BG	114	66	44.1	9.2	6	85/9/6
CZ	214	71	52.0	21.9	98	57/18/24
EE	51	92	48.3	17.9	96	51/29/20
HU	144	41	53.5	21.8	87	56/24/40
LT	31	68	45.1	9.0	83	65/23/13
LV	77	91	49.3	19.1	99	77/16/8
PL	100	62	46.4	16.6	96	47/29/23
SK	57	77	51.8	22.6	100	54/20/27
SL	79	66	46.2	18.4	77	33/30/37
Total	867	67	49.3	18.5	82	59/21/20

3.2 Familiarity of guidelines for gastrointestinal problems

Over 70% of respondents in 8 of the 9 countries were aware of guidelines for dyspepsia, GORD and colorectal cancer risk. The sole exception was Lithuania, where 48.4% of doctors knew the guidelines for dyspepsia ($p<0.001$) and 41.9% for colorectal cancer risk ($p<0.001$). Considerable differences between countries were found in the reported familiarity of guidelines for irritable bowel syndrome ($p<0.001$).

Doctors with longer experience more frequently declared knowledge of guidelines for GORD (correlation coefficient $\text{Gamma}=0.09$; $p=0.006$) and colorectal cancer risk (cor-

relation coefficient $\text{Gamma}=0.12$; $p<0.001$). Awareness of standard procedures in colorectal cancer risk was also correlated with age of GPs (correlation coefficient $\text{Gamma}=0.08$; $p=0.008$). No correlations were found between familiarity of guidelines and respondents' gender, specialization and practice location.

3.3 Clinical management of upper gastrointestinal tract disorders

3.3.1 Dyspepsia

Considerable national differences were found in first-line diagnostic and management approaches for patients younger than 45 years of age with uninvestigated dyspepsia without alarm symptoms. Empirical therapy with proton pump inhibitors (PPI) was reported by a majority of respondents, with a range from 35.5% physicians in Lithuania up to 80% of doctors in Poland ($p<0.001$). 32.2% of all doctors declared referring patients to a specialist, and that percentage varied from 7.6% in Slovenia to 55.3% in Bulgaria ($p<0.001$). Country specific data are presented in Figure 1.

PPI therapy was more often reported by younger GPs (correlation coefficient $\text{Gamma}=-0.17$; $p<0.001$) and by physicians with fewer years of experience in general practice

(correlation coefficient $\text{Gamma}=-0.1$; $p<0.001$). No correlations were found between the use of PPI and respondents' gender, specialization and practice location.

Referral to a specialist was more frequently declared by older respondents (correlation coefficient $\text{Gamma}=0.07$; $p=0.011$) and by doctors without specialization in family medicine/general practice (49.4% versus 28.3% of doctors with specialization; $p<0.001$). The least popular approach was empirical therapy with histamine-2 receptor antagonist (H2RA), which was acknowledged by 23.6% of family physicians, with a range from 10.3% of respondents in the Czech Republic up to 42.1% of doctors in Slovakia ($p<0.001$).

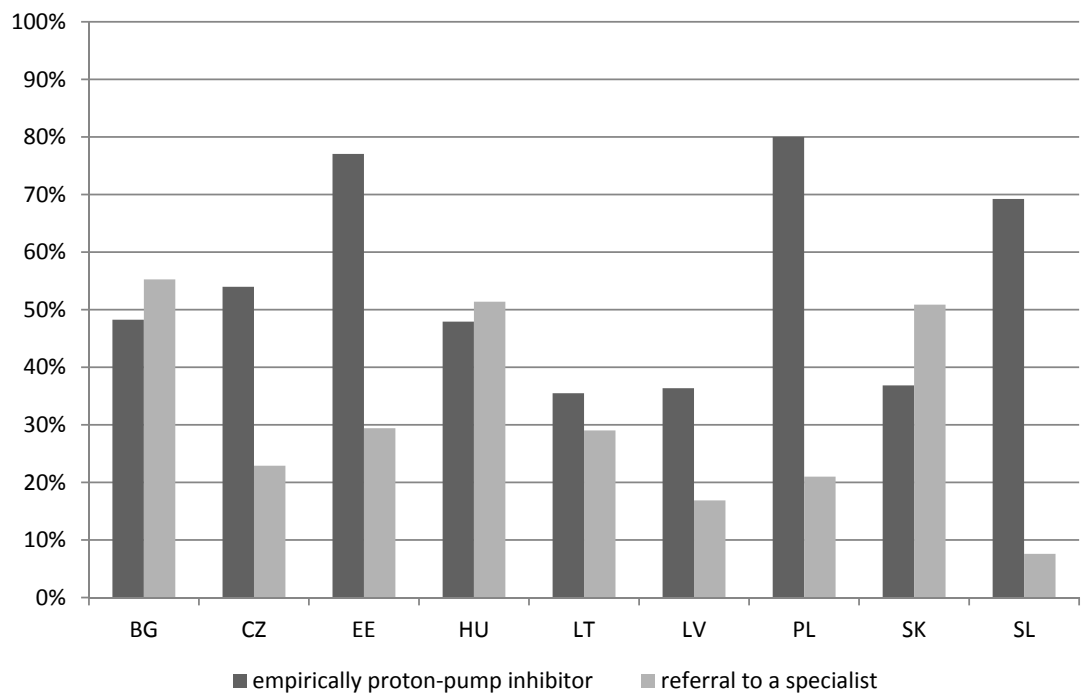


Figure 1. Percentage within each country - first-line diagnostic and management approach in patients under 45 years with uninvestigated dyspepsia without alarm symptoms.

3.3.2 Gastro-esophageal reflux disease

In managing GORD, 65.1% of physicians from participating countries declared use of therapeutic test by PPI for di-

agnosing the condition. In particular countries, this percentage varied significantly (42.9% in Latvia to 96.2% in Slovenia; $p<0.001$). Detailed data are showed in Figure 2.

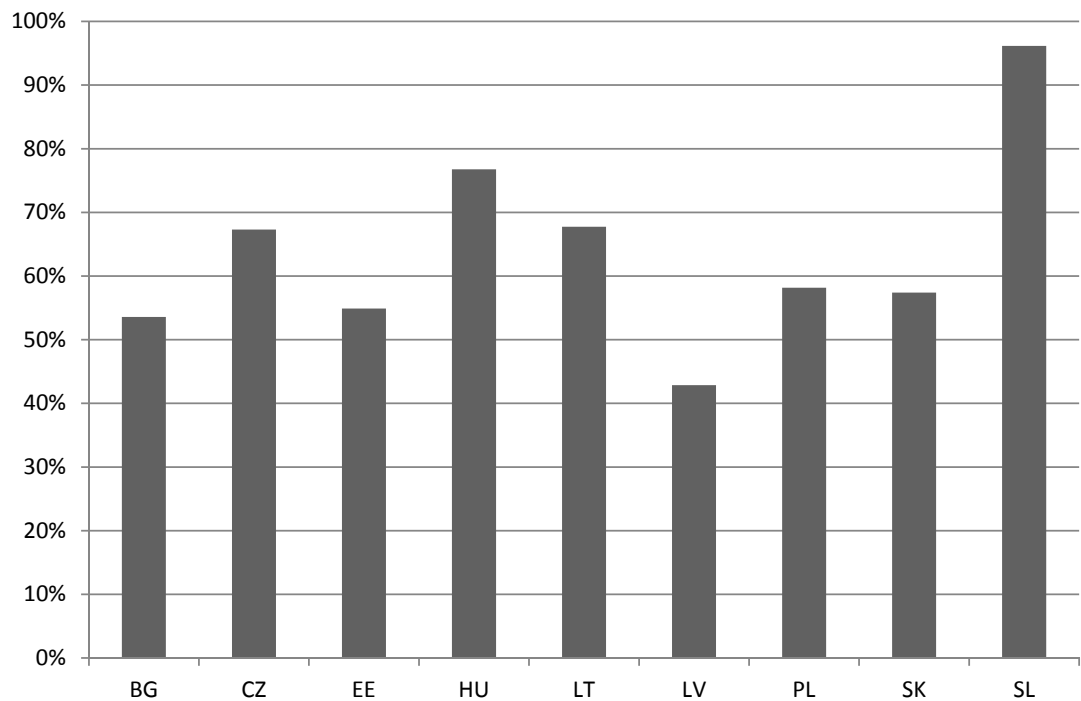


Figure 2. Percentage of physicians using the therapeutic test by proton inhibitors for diagnosing gastro-oesophageal reflux disease in primary care.

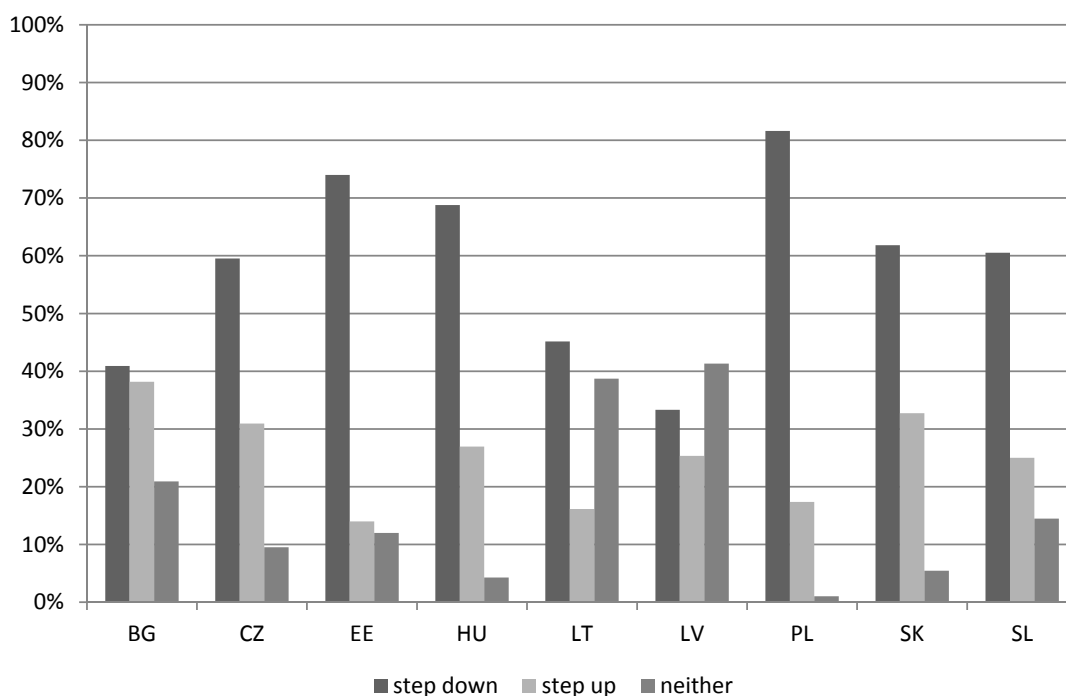


Figure 3. Percentage of physicians using “step down” and “step up” approach in the management of gastro-oesophageal reflux disease in primary care.

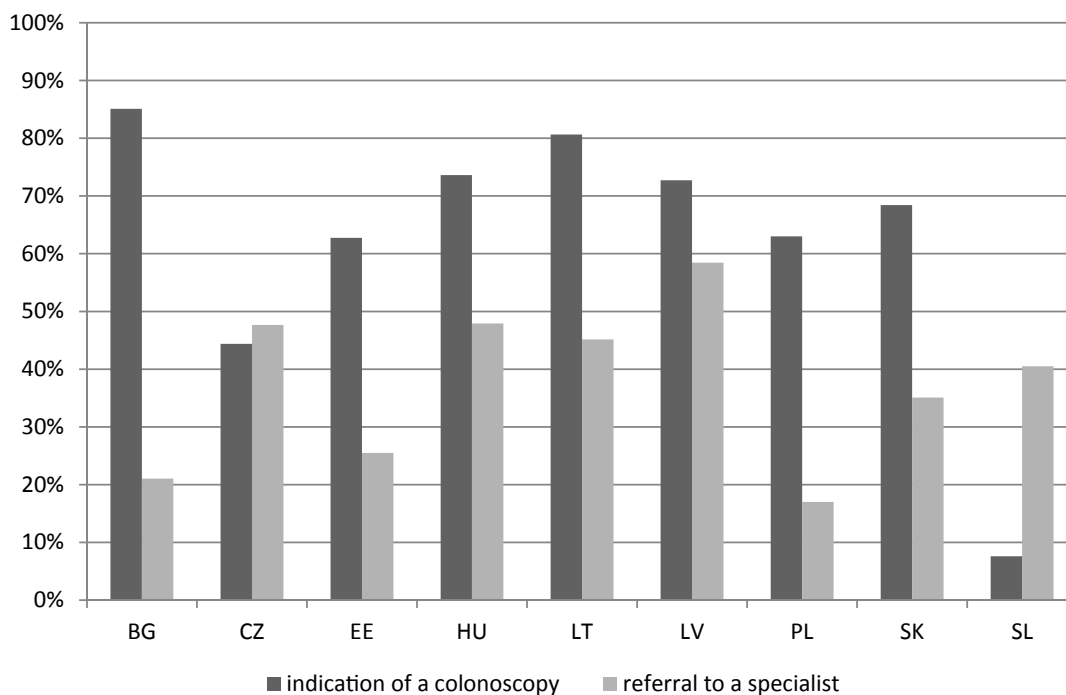


Figure 4. Percentage within each country - investigations at first visit in patients under 45 years with rectal bleeding without alarm symptoms.

We did not find associations between the use of the therapeutic test by PPI in diagnosing GORD and respondents' characteristics. Figure 3 illustrates the percentage of physicians within each country using a "step down" (from the most potent drug down to the weakest) and "step up" (from the weakest up to the most potent) drug treatment strategy in the management of GORD. The differences between studied countries were significant ($p<0.001$). A "step down" approach was favored over a "step up" approach in all countries apart from Latvia, where the respondents most often declared using neither of the strategies. The use of a "step down" approach was reported by 62.9% of physicians with a specialization in family medicine/general practice and by 45.4% of physicians without it ($p<0.001$).

3.4 Clinical management of lower gastrointestinal tract disorders

3.4.1 Rectal bleeding without alarm symptoms

The approach strategies in patients with rectal bleeding differed significantly between countries. The majority (59.8%) of family physicians would refer patients under 45 years without alarm symptoms to a specialist for assessment (from 7.6% of doctors in Slovenia to 85.1% of doctors in Bulgaria; $p<0.001$). 38.7% of respondents would indicate a colonoscopy examination (from 17% of doctors in Poland to 58.4% of doctors in Latvia; $p<0.001$). Figure 4 shows detailed data.

Indication for a colonoscopy was more frequently declared by doctors with family medicine specialization (40.7%

versus 31.4%, $p=0.032$), by older respondents (correlation coefficient $\text{Gamma}=0.06$; $p=0.03$) and by doctors with longer experience in general practice (correlation coefficient $\text{Gamma}=0.1$; $p<0.001$). The analysis did not show correlations between this approach and respondents' gender and practice location. Study participants without specialization (71.2% versus 57.1%, $p=0.001$) and with fewer years of experience in general practice (correlation coefficient $\text{Gamma}= -0.07$; $p=0.016$) would more often seek a consultation with a specialist. No associations were found between referral to a specialist and the respondents' gender, age and practice location.

3.4.2 Rectal bleeding with alarm symptoms

Routine referrals to specialists or hospitals for patients with rectal bleeding (mixed with stool, in the elderly, along with alterations in frequency of stools) were employed by 58.9% of doctors (from 25.9% in Lithuania to 82.5% of respondents in Bulgaria; $p<0.001$). 54.9% of family physicians would make an urgent specialist appointment or hospital admission (from 38% in Slovenia to 80.7% in Lithuania; $p<0.001$). 54.7% of respondents would arrange a colonoscopy (from 37% of respondents in Poland to 76% in Lithuania; $p<0.001$). Detailed data are presented in Figure 5.

Routine referral to a specialist and arrangement of a colonoscopy were considerably influenced by respondents' specialization. Doctors without family medicine specialization more often declared they would request a routine referral to a specialist (76.3% versus 54.8%, $p<0.001$) and more rarely reported arrangement of a colonoscopy (46.8%

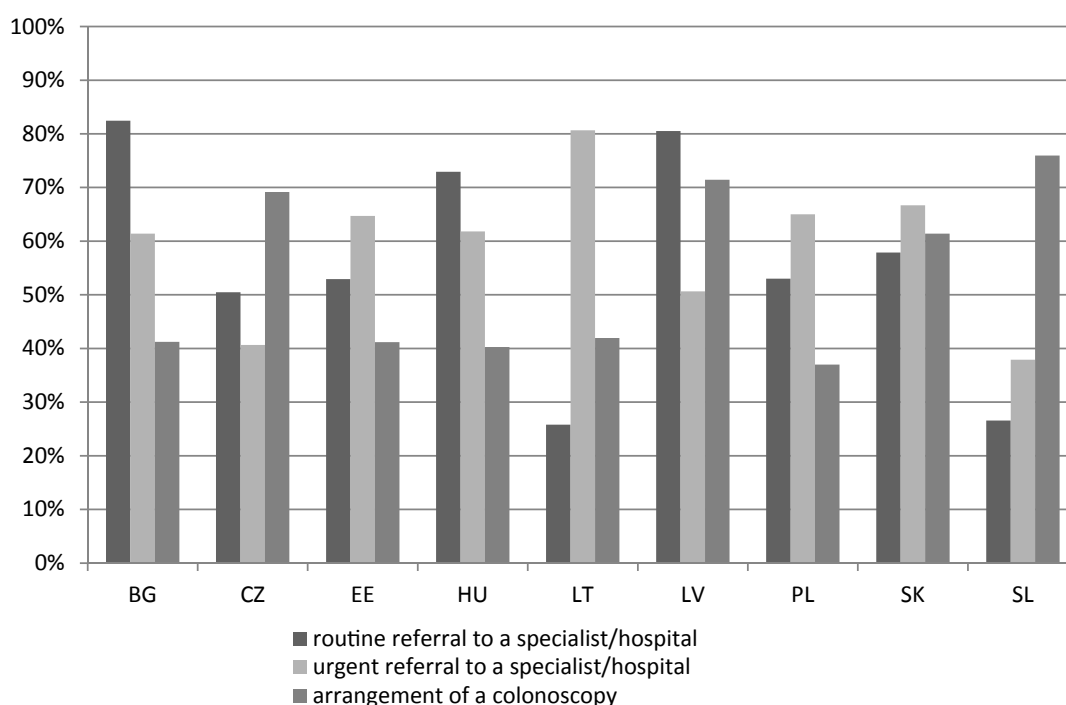


Figure 5. Percentage within each country - investigations in patients with rectal bleeding in connection with alarm symptoms.

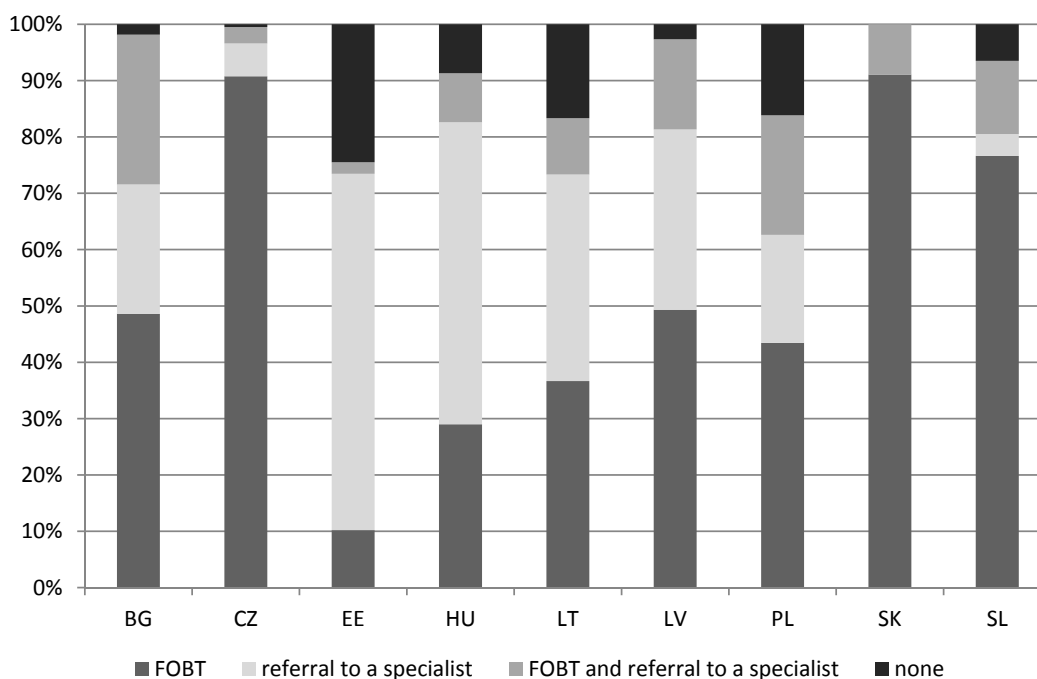


Figure 6. Percentage within each country - approach to colorectal cancer screening.

versus 56.7%, $p=0.026$). No correlation was found between an urgent referral to a specialist/hospital and respondents' specialization.

3.4.3 Colorectal cancer screening

Altogether, 93.4% of FPs confirmed their involvement in colorectal cancer screening. The approach to the screening varied significantly among countries participating in the study. In the majority of the countries, responding doctors most often reported that they ordered fecal occult blood test (FOBT). The exceptions were Estonia and Hungary, where the majority of family physicians referred patients to a specialist ($p<0.001$). Colorectal screening by means of FOBT was considerably influenced by respondents' specialization (60% of doctors with specialization versus 50% of doctors without specialization; $p=0.009$) and gender (62.2% of female doctors versus 49.8% of male doctors; $p=0.003$). There were no correlations between the screening method and respondents' age, professional experience and practice location. The approach to colorectal cancer screening is illustrated in Figure 6.

3.3.4 Irritable bowel syndrome

Only 32.7% of respondents declared use of any criteria for the diagnosis of IBS, with a range from 9.7% in Lithuania up to 69.2% in Poland ($p<0.001$). The use of any IBS criteria correlated significantly with respondents' specialization (35.5% of doctors with specialization versus 19.4% of doctors without specialization; $p<0.001$) and gender (35.2% of female doctors versus 27.1% of male doctors; $p=0.018$).

4 DISCUSSION

4.1 Main findings in comparison with other studies

In this international cross-sectional study with focus on the management of GI tract disorders, we observed many differences between general practitioners from CEE countries. The results of our survey may be compared with results from the pan-European study by the European Society for Primary Care Gastroenterology (ESPCG) (16). Both studies showed high levels of awareness of guidelines for management of GI disorders among family physicians.

For patients with uninvestigated dyspepsia without alarm symptoms, the managerial strategies revealed by our study included mainly therapy with PPI and referral to a specialist. The least popular preference was the empirical therapy with H2RA. Spiegel et al. found that gastroenterologists followed available guidelines more often than primary care physicians. Primary care physicians often define dyspepsia incorrectly and overuse unnecessary diagnostic testing and treatment not supported by scientific evidence (22).

In the process of diagnosis of GORD, nearly two thirds of all doctors in our study reported using the PPI test. In the management of GORD, general practitioners in most of the countries, except those in Latvia, preferred a "step down" approach over a "step up" strategy. As in our survey, according to Seifert et al. the most preferred approach in dyspepsia was empirical therapy with proton pump inhibitor, and a "step down" drug treatment strategy in management of GORD was favored in all studied countries except Spain (16). Several other studies also demonstrated that a "step

down" approach is currently the most common strategy in primary care (23, 24).

Gisbert et al. showed that the majority of patients with GORD symptoms were prescribed a proton pump inhibitor, results that were also confirmed by our survey (17). The study conducted by Boparai et al. revealed that younger FPs/GPs use PPI more often than their older colleagues, as it is a new management approach (25). PPI are one of the most frequently prescribed medications and there is a growing concern about the rationale for the use of PPI therapy in primary care (26).

Studies from Australia regarding the approach to the symptom of rectal bleeding and involvement in implementing a colorectal cancer screening program showed a wide variation in practices among GPs (27, 28). Nevertheless, it is proven that primary care physicians could play an essential role by encouraging patients to take part in prevention programs and by offering psychosocial support for both the patient suffering from colorectal cancer and their family (29). In our survey, the majority of family physicians reported that they would refer patients with rectal bleeding to a specialist for further diagnostic tests or arrange a colonoscopy; these results are similar to findings from a German study that investigated strategies of the diagnostic work-up of patients presenting with rectal bleeding in general practice using a digital practice patient file (30). The vast majority of GPs from our study (over 90%) declared their involvement in colorectal cancer screening. A review from Mauri et al. reported that in Western European countries (France, Italy, Switzerland) colorectal cancer screening was recommended by 65%-95% of physicians, and the majority of them implemented it only among high-risk individuals (31). Xilomenos et al. found that in Greece only 50% of general practitioners recommend screening for colorectal cancer during usual consultations (32).

GPs in our survey more often declared use of any criteria for the diagnosis of IBS than the respondents from a relevant Pan-European study, 33% and 23% respectively (16). The available studies showed that IBS criteria are poorly known in primary care (33, 34). Olafsdottir et al. found that although 64% of general practitioners in Iceland declared they knew that IBS criteria existed, only 10% had heard of the Manning criteria, 27% of Rome I and 17% of Rome II (35).

4.2 Limitations of the study

This is a new study about the management of GI disorders in primary care from health care systems of Central and Eastern Europe. The strength of the study is the participation of physicians from a large number of CEE countries. Some studies show large positive changes in Eastern and Central European primary care systems, but other studies show the opposite (36). Only a few studies in primary care have analyzed physicians' decisions about the initiation of diagnosis and management of GI tract disease (16-18). Most of these were performed in Western European countries. In our study, the total number of participants was large. Although the response rate was relatively low, it was

comparable with other studies of similar type (16, 37, 38), and moreover a predesignated number of respondents was reached in almost all countries.

Physician surveys are often characterized by low response rates, although they are an important tool in health services and policy research (39). There is a number of reasons why physicians refuse to participate in surveys, e.g. lack of time, perceived salience of the study, concerns about the confidentiality of the results and confusing content of the questionnaire: individual survey questions not allowing the respondent a full range of choices on the subject (39). To improve the response rate in our study, several steps were undertaken: the face and content validity of the questionnaire were assessed, a rigorous questionnaire translation procedure was implemented and survey reminders to all non-respondents were sent (19). Unfortunately, due to limited resources, detailed non-respondents analysis was not conducted, which limits the ability to gain a more specific look at the studied problems. The other limitation was the difficulty in interpreting the survey results, since these are influenced by national health care variations, competencies, responsibilities, etc.

It is necessary to highlight the fact that we did not study the everyday, routine practice of primary care physicians (e.g. from medical records) influenced by the actual position in their country's health care system but self-reported behavior.

4.3 Interpretation of study findings

The highly declared familiarity with the guidelines for gastroenterology should be looked at positively, because it reflects an improvement in professional education and health policy. However, it is known that awareness of standards does not always mean that they will be implemented in daily practice. There is a need for a comparative study that would explore the implementation of guidelines in practice.

GPs participating in our study showed sufficient medical knowledge that can be used in daily practice. Only IBS management was neglected by the majority of the respondents. These findings are not surprising, because there is a lack of widely accepted, evidence-based international guidelines. This is also a problem in specialist care (40, 41).

The higher incidence of colorectal cancer in CEE countries influences the approach to lower gastrointestinal tract symptoms, which is reflected by the involvement of almost all participating family physicians in colorectal cancer screening. In countries where FOBT based colorectal cancer screening was established (Czech Republic and Slovakia), GPs reported using it for screening. In other countries, GPs referred patients to specialists either for screening or if they suspected cancer. This is the proper management for the problem of colorectal cancer, especially considering the increasing prevalence all over the world. According to current recommendations, screening for colon cancer should be performed in each European country (42). Several models of screening programs have been designed

in Europe to meet this problem (43). Current guidelines highlight that primary care should be responsible for the identification and management of individuals at increased total risk of GI cancer (15, 44). The involvement of GPs in colorectal cancer screening has been found to strongly improve patient compliance (45, 46).

The great diversity between CEE countries in general practitioners' management of GI disorders can be partly explained through variations in development of family medicine/general practice in national health care systems (47). In the past, the health care systems of CEE countries were largely focused on specialist and hospital care. In all CEE countries, postgraduate training has been established according to European Directives. Recently, these countries have experienced a lot of changes and developed their own strategies and priorities for health systems by putting more emphasis on primary care systems (9, 36). Unfortunately, a recent international survey revealed that the levels of implementation of family medicine differ between CEE countries and that initial enthusiasm for implementing family medicine has decreased (36). In most countries, family medicine is just one of many medical specialties (e.g. internal medicine) in primary health care. A full introduction of family medicine, where the family doctor would be the main health care professional, covering the whole range of diagnostic, curative and preventive tasks, was successful only in Estonia. Although all the studied countries have legally described the competencies of primary care providers, the agencies that are responsible for this vary. In Bulgaria, Poland and Slovakia, the government describes the tasks of general practitioners. In Slovenia, this is done by the college of physicians, and in some countries (Czech Republic and partially Poland), there is a strong regulative role by health insurance companies. The level of gate-keeping in the studied countries varies. Its limitation might lead to an excessive use and overloading of secondary care (48). The differences between countries might also be explained by the various methods of financing. The payment system in some countries (e.g. BG, EE, LT and PL) encourages primary care providers to be active in performing procedures (e.g. colonoscopy, screening), while in the others similar incentives are lacking (49).

Our study showed that after several years of transformation, primary care physicians recognize the importance of using current guidelines for management of gastrointestinal disorders. Updated and existing guidelines like the Maastricht H. pylori consensus, the Montreal definition, classification on GORD and the dyspepsia guidelines can lead physicians through management of common gastrointestinal problems (50-53). The new politics of continuing medical education, cooperation between primary care and specialist care and internet access are the main future development tools (31).

5 CONCLUSIONS

We conclude that FPs/GPs from CEE countries have a good understanding of their role in management of patients with GI tract problems. The results of this study suggest that

more experienced physicians and those having specialization in family medicine are better prepared to manage GI problems. This conclusion, however, should be taken with caution due to the relatively low response rate of the respondents participating in the study. Significant variation between the countries of Central and Eastern Europe justifies calling for better international collaboration in education and development of clinical guidelines to achieve high quality of care for patients with GI problems.

CONFLICT OF INTEREST

The authors declare that no conflict of interest exist.

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ETHICAL APPROVAL

Not required.

REFERENCES

1. Bolling-Sternevald E, Aro P, Ronkainen J, Storskrubb T, Talley NJ, Jung-
hard O et al. Do gastrointestinal symptoms fluctuate in the short-term
perspective? The Kalixanda study. *Dig Dis* 2008; 26: 256-63.
2. Agréus L, Talley NJ, Sheen A, Johansson SE, Jones MP, Svardsudd K. Pre-
dictors and non-predictors of symptom relief in dyspepsia consultations
in primary care. *Dig Dis* 2008; 26: 248-55.
3. Everhart JE, Ruhl CE. Burden of digestive diseases in the United States:
part I: overall and upper gastrointestinal diseases. *Gastroenterology*
2009; 136: 376-86.
4. Williams JG, Roberts SE, Ali MF, Cheung WY, Cohen DR, Demery G et al.
Gastroenterology services in the UK: the burden of disease, and
the organisation and delivery of services for gastrointestinal and liver
disorders: a review of the evidence. *Gut* 2007; 56 (Suppl 1): 1-113.
5. Aro P, Talley NJ, Agréus L, Johansson SE, Bolling-Sternevald E, Storskrub-
b T et al. Functional dyspepsia impairs quality of life in the adult
population. *Aliment Pharmacol Ther* 2011; 33: 1215-24.
6. Halder SL, Locke GR, Talley NJ, Fett SL, Zinsmeister AR, Melton LJ.
Impact of functional gastrointestinal disorders on health-related quality
of life: a population-based case-control study. *Aliment Pharmacol Ther*
2004; 19: 233-42.
7. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C et al.
GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC
CancerBase No. 11 [Internet]. Lyon, France: International Agency for
Research on Cancer, 2013. Available Feb 27, 2014 from: <http://globocan.iarc.fr>
8. Center MM, Jemal A, Smith RA, Ward E. Worldwide variations in colo-
rectal cancer. *CA Cancer J Clin* 2009; 59: 366-78.
9. Seifert B, Svab I, Madis T, Kersnik J, Windak A, Steflava A et al. Perspec-
tives of family medicine in Central and Eastern Europe. *Fam Pract* 2008;
25: 113-8.
10. Rechel B, McKee M. Health reform in Central and Eastern Europe and
the former Soviet Union. *Lancet* 2009; 374: 1186-95.
11. Albrecht T, Klazinga N. Privatisation of health care in Slovenia in the
period 1992-2008. *Health Policy* 2009; 90: 262-9.
12. Malfertheiner P, Megraud F, O'Morain CA, Atherton J, Axon AT, Bazzoli
F et al. Management of *Helicobacter pylori* infection -- the Maastricht
IV/ Florence Consensus Report. *Gut* 2012; 61: 646-64.
13. Delaney B, Ford AC, Forman D, Moayyedi P, Qume M. Initial management
strategies for dyspepsia. *Cochrane Database Syst Rev* 2005: CD001961.

14. Butterly LF, Goodrich M, Onega T, Greene MA, Srivastava A, Burt R et al. Improving the quality of colorectal cancer screening: assessment of familial risk. *Dig Dis Sci* 2010; 55: 754-60.
15. Regula J, Kaminski MF. Targeting risk groups for screening. *Best Pract Res Clin Gastroenterol* 2010; 24: 407-16.
16. Seifert B, Rubin G, de Wit N, Lionis C, Hall N, Hungin P et al. The management of common gastrointestinal disorders in general practice: a survey by the European Society for Primary Care Gastroenterology (ESPCG) in six European countries. *Dig Liver Dis* 2008; 40: 659-66.
17. Gisbert JP, Cooper A, Karagiannis D, Hatlebakk J, Agréus L, Jablonowski H et al. Management of gastro-oesophageal reflux disease in primary care: a European observational study. *Curr Med Res Opin* 2009; 25: 2777-84.
18. Tosetti C, Bellentani S, Benedetto E, Ubaldi E, Cardin F, Bozzani A et al. The management of patients with new onset of upper gastro-intestinal symptoms in primary care. *Dig Liver Dis* 2010; 42: 860-4.
19. Tomasik T, Windak A, Seifert B, Kersnik J, Palka M, Margas G et al. The self-perceived role of general practitioners in care of patients with cardiovascular diseases: a survey in Central and Eastern European countries following health care reforms. *Int J Cardiol* 2013; 164: 327-33.
20. Tomasik T, Windak A, Jozwiak J, Oleszczyk M, Seifert B, Kersnik J et al. Treatment of hypertension in Central and Eastern European countries: self-reported practice of primary care physicians. *J Hypertens* 2012; 30: 1671-8.
21. Tomasik T, Windak A, Seifert B, Kersnik J, Kijowska V, Dubas K. Lipid-lowering pharmacotherapy in central and eastern European countries in cardiovascular prevention: self-reported prescription patterns of primary care physicians. *J Cardiovasc Pharmacol Ther* 2013; 18: 234-42.
22. Spiegel BM, Farid M, van Oijen MG, Laine L, Howden CW, Esrailian E. Adherence to best practice guidelines in dyspepsia: a survey comparing dyspepsia experts, community gastroenterologists and primary-care providers. *Aliment Pharmacol Ther* 2009; 29: 871-81.
23. Bretagne JF, Honnorat C, Richard-Molard B, Soufflet C, Barthélemy P. Perceptions and practices on the management of gastro-oesophageal reflux disease: results of a national survey comparing primary care physicians and gastroenterologists. *Aliment Pharmacol Ther* 2007; 25: 823-33.
24. Halpern R, Kothari S, Fuldeore M, Zarotsky V, Porter V, Dabbous O et al. GERD-related health care utilization, therapy, and reasons for transfer of GERD patients between primary care providers and gastroenterologists in a US managed care setting. *Dig Dis Sci* 2010; 55: 328-37.
25. Boparai V, Rajagopalan J, Triadafilopoulos G. Guide to the use of proton pump inhibitors in adult patients. *Drugs* 2008; 68: 925-47.
26. Batuwitage BT, Kingham JG, Morgan NE, Bartlett RL. Inappropriate prescribing of proton pump inhibitors in primary care. *Postgrad Med J* 2007; 83: 66-8.
27. Olynyk JK, Aquilia S, Platell CF, Fletcher DR, Henderson S, Dickinson JA. Colorectal cancer screening by general practitioners: comparison with national guidelines. *Med J Aust* 1998; 168: 331-4.
28. Sladden MJ, Ward JE. Australian general practitioners' views and use of colorectal cancer screening tests. *Med J Aust* 1999; 170: 110-3.
29. Hanks H, Veitch C, Harris M. Colorectal cancer management - the role of the GP. *Aust Fam Physician* 2008; 37: 259-61.
30. Heintze C, Matysiak-Klose D, Kröhn T, Wolf U, Brand A, Meisner C et al. Diagnostic work-up of rectal bleeding in general practice. *Br J Gen Pract* 2005; 55: 14-9.
31. Mauri D, Pentheroudakis G, Milousis A, Xilomenos A, Panagouloupoulou E, Bristianou M et al. Colorectal cancer screening awareness in European primary care. *Cancer Detect Prev* 2006; 30: 75-82.
32. Xilomenos A, Mauri D, Kamposioras K, Gkinosati A, Zacharias G, Sidiropoulou V et al. Colorectal cancer screening awareness among physicians in Greece. *BMC Gastroenterol* 2006; 6: 18.
33. Spiegel BM, Farid M, Esrailian E, Talley J, Chang L. Is irritable bowel syndrome a diagnosis of exclusion?: a survey of primary care providers, gastroenterologists, and IBS experts. *Am J Gastroenterol* 2010; 105: 848-58.
34. Gladman LM, Gorard DA. General practitioner and hospital specialist attitudes to functional gastrointestinal disorders. *Aliment Pharmacol Ther* 2003; 17: 651-4.
35. Olafsdottir LB, Gudjonsson H, Jonsdottir HH, Jonsson JS, Bjornsson E, Thjodleifsson B. Irritable bowel syndrome: physicians' awareness and patients' experience. *World J Gastroenterol* 2012; 18: 3715-20.
36. Oleszczyk M, Svab I, Seifert B, Krztoń-Królewiecka A, Windak A. Family medicine in post-communist Europe needs a boost. Exploring the position of family medicine in healthcare systems of Central and Eastern Europe and Russia. *BMC Fam Pract* 2012; 13: 15.
37. Klemenc-Ketis Z, Peterlin B. Family physicians' self-perceived importance of providing genetic test information to patients: a cross-sectional study from Slovenia. *Med Sci Monit* 2014; 20: 434-7.
38. Hawley ST, Foxhall L, Vernon SW, Levin B, Young JE. Colorectal cancer screening by primary care physicians in Texas: a rural-urban comparison. *J Cancer Educ* 2001; 16: 199-204.
39. VanGeest JB, Johnson TP, Welch VL. Methodologies for improving response rates in surveys of physicians: a systematic review. *Eval Health Prof* 2007; 30: 303-21.
40. Spiegel BM, Farid M, Esrailian E, Talley J, Chang L. Is irritable bowel syndrome a diagnosis of exclusion?: a survey of primary care providers, gastroenterologists, and IBS experts. *Am J Gastroenterol* 2010; 105: 848-58.
41. Almansa C, Díaz-Rubio M, Rey E. The burden and management of patients with IBS: results from a survey in spanish gastroenterologists. *Rev Esp Enferm Dig* 2011; 103: 570-5.
42. Kuiper T, Marsman WA, Jansen JM, van Soest EJ, Haan YC, Bakker GJ et al. Accuracy for optical diagnosis of small colorectal polyps in nonacademic settings. *Clin Gastroenterol Hepatol* 2012; 10: 1016-20.
43. Zavoral M, Suchanek S, Zavada F, Dusek L, Muzik J, Seifert B et al. Colorectal cancer screening in Europe. *World J Gastroenterol* 2009; 15: 5907-15.
44. Berberat PO, de Wit NJ, Bockhorn M, Lundell L, Drenth JP. Training innovations in gastroenterology and educational resources: a new vision of gastrointestinal education across Europe. *Eur J Gastroenterol Hepatol* 2010; 22: 1393-6.
45. Federici A, Giorgi Rossi P, Bartolozzi F, Farchi S, Borgia P, Guastacchi G. The role of GPs in increasing compliance to colorectal cancer screening: a randomised controlled trial (Italy). *Cancer Causes Control* 2006; 17: 45-52.
46. Hart AR, Barone TL, Gay SP, Inglis A, Griffin L, Tallon CA et al. The effect on compliance of a health education leaflet in colorectal cancer screening in general practice in central England. *J Epidemiol Community Health* 1997; 51: 187-91.
47. Grielen SJ, Boerma WGW, Groenewegen PP. Unity or diversity? Task profiles of general practitioners in central and eastern Europe. *Eur J Public Health* 2000; 10: 249-54.
48. Hurley RE, Freund DA, Gage BJ. Gatekeeper effects on patterns of physician use. *J Fam Pract* 1991; 32: 167-74.
49. Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Giuffrida A et al. Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians. *Cochrane Database Syst Rev* 2000; 3: CD002215.
50. Vakli N, van Zanten SV, Kahrilas P, Dent J, Jones R, Group GC. The Montreal definition and classification of gastroesophageal reflux disease: a global evidence-based consensus. *Am J Gastroenterol* 2006; 101: 1900-20.
51. Talley NJ, Vakli N, Gastroenterology PPCotACo. Guidelines for the management of dyspepsia. *Am J Gastroenterol* 2005; 100: 2324-37.
52. Loyd RA, McClellan DA. Update on the evaluation and management of functional dyspepsia. *Am Fam Physician* 2011; 83: 547-52.
53. Malfetheriner P, Megraud F, O'Morain CA, Bazzoli F, El-Omar E, Graham D et al. Management of *Helicobacter pylori* infection -- the Maastricht IV/ Florence Consensus Report. *Gut* 2012; 61: 646-64.